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METEOROLOGICAL DATA PROCESSING GROUP OL-192/GMD-1

GUIDANCE PACKAGE

U.S. ARMY
FIELD ARTILLERY SCHOOL
Counterfire Department
Fort Sill, Oklahoma

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PREFACE

TO THE STUDENT

The material you are about to study is in the form of a self-instructional package. You are to read the paragraphs and then accomplish the work called for. When you are called upon to answer a question, you may check the accuracy of your answer by comparing it with the correct answer at the top of the next page. For practical work, in most cases, the instructor will check the desired performance. When you are satisfied that you understand the material contained in the paragraph, go to the next paragraph and repeat the process. If at any time you assistance, do not hesitate to ask the instructor.

INTRODUCTION

The purpose of the METEOROLOGICAL DATA PROCESSING GROUP OL-192/GMD-1 is to quickly and accurately convert the raw met data and raw wind data received by the RAWINSONDE SYSTEM, into real time accurate meteorological messages. Even though most of the computations are automatic, the computer operator retains full control of the OL-192. It is the operator who must enter the raw met data from the RADIOSONDE RECORDER AN/TMQ-5, and the raw wind data from the control-recorder when prompted by the LED display of the OL-192. The first step in becoming qualified in operating the OL-192. This will be covered in Section I of the guidance package. In Section II you will be instructed on how to enter raw met and wind data into the computer for computing the various met messages.

OBJECTIVE

Given data obtained from rawinsonde flights and one OL-192 Data Processing Group, you will operate the Data Processing Group without error in producing meteorological messages.

Section I. COMPONENTS AND ASSEMBLY

1. The OL-192 was designed to improve the operational capabilities of the technically obsolete RAWINSONDE SYSTEM by providing more timely met data which in turn increases the accuracy of artillery fire. Additionally, use of the OL-192 significantly reduces the staleness factor of the met data used in artillery firings. The OL-192 is designed for operation within a mobile ground shelter or for transportation in airborne air dropped open bed vehicles.

Exercise 1.

The OL-192 was designed to improve the capabilities of the RADIOSONDE SYSTEM.

(True, False)

Exercise 2.

The OL-192 is designed for operation within a mobile ground shelter or for transportation in

AIRBORNE AIR DROPPED OPEN BED VEHICLES.

2. The OL-192 (fig 1) is an assemblage of a commercial desk top mini computer and a compatable commercial teletypewriter paper tape reader/punch and associated components. The computer, HP 9825A (fig 2), is a programable desk top computer weighing twenty-six pounds, which, when programed with a met program will convert the raw met and wind data into usable met messages. It can be operated on either of four line voltages, 100, 120, 220, and 240 volts A.C. The line frequency is from 48 to 66 Hertz.

Exercise 3. The HP9825A computer can be operated on either of FOUR voltages, with a line frequency from 48 to 66 Hertz.

3. The computer has a 32 character LED (light emitting diodes) display; a 16 character printer which prints a hard copy tape listing of programs, entries, messages, and processed data; a magnetic tape data cartridge reader which is used for fast loading and access of programs and/or data. The average program loading time is 6 seconds. Also, the computer has an audio alarm which alerts the operator for data inputs.

4. The most noticeable part of the computer are the three keyboards. You as operators, will be primarily concerned with the numeric keyboard and the special function keyboard (fig 2). The computer has been modified with a protective cover which encloses the alphanumeric keyboard and the special programing keys. This was done to prevent the operator from accidentally using the wrong keys and destroying the met program when entering the raw met and wind data.

Exercise 4.

For met computations, the operator only uses the NUMERIC keyboard and the SPECIAL FUNCTION keyboard.

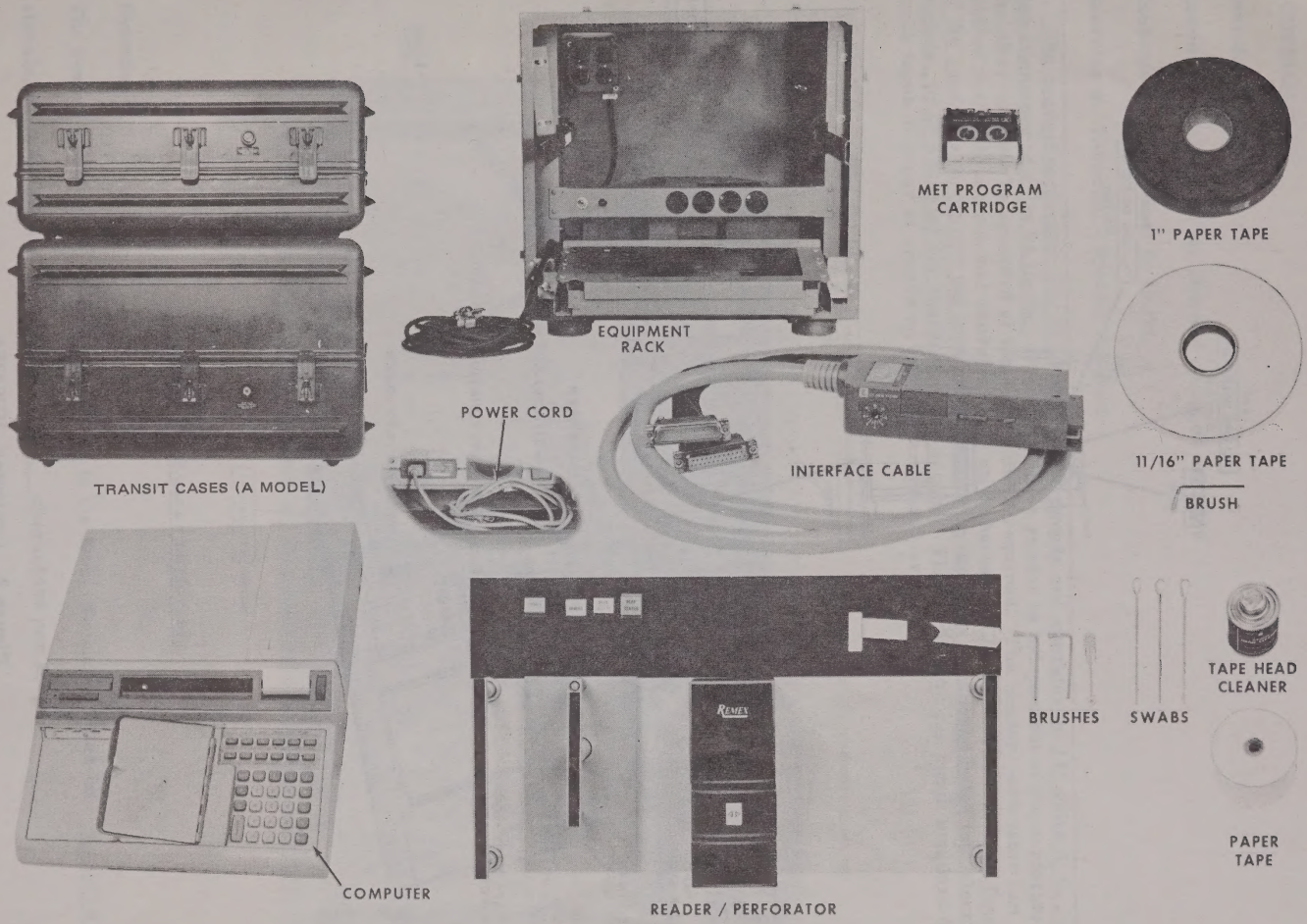

Figure 1. Meteorological Data Processing Group OL-192 (Major Components).

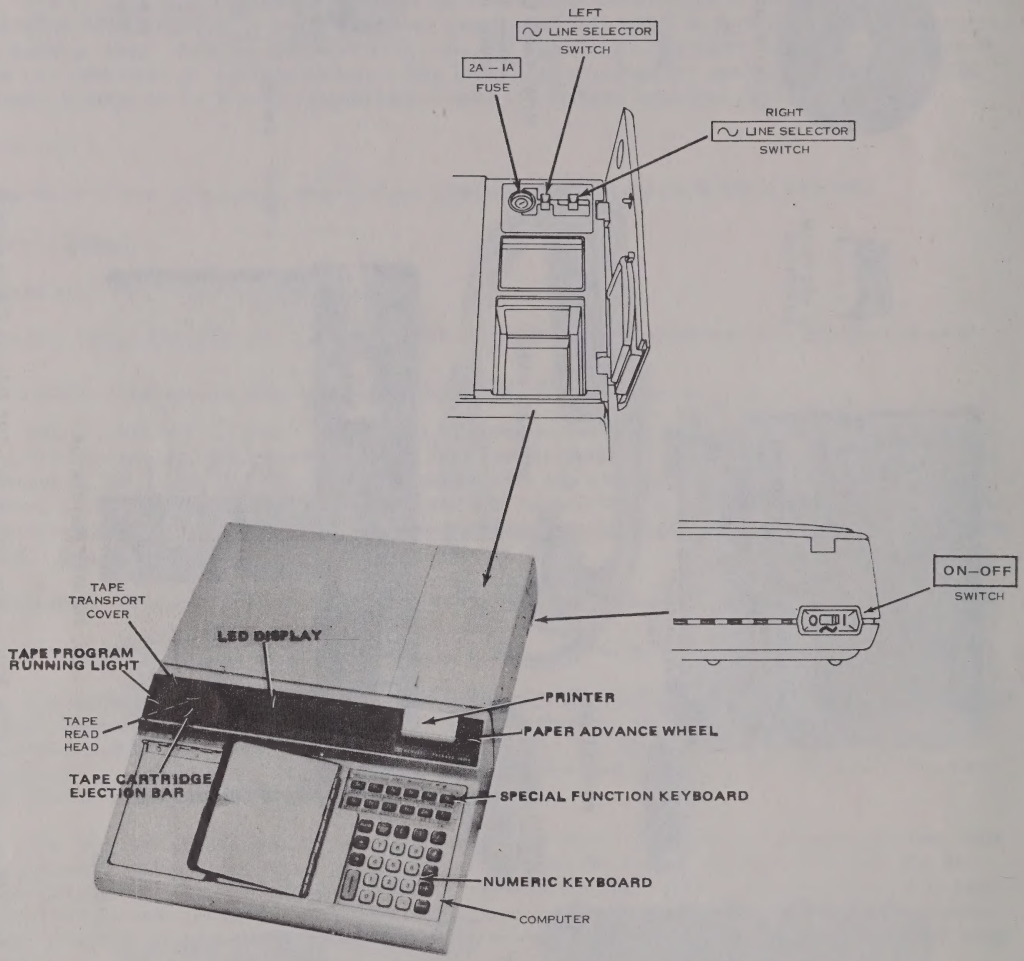

Figure 2. Computer, HP9825A.

CONFIRMATION

Exercise 1. False.

Exercise 2. Airborne air dropped open bed vehicles.

Exercise 3. Four-48 to 66 Hertz.

Exercise 4. Numeric - Special Function

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5. The reader/perforator (fig 3) weighs 46 1/2 pounds and operates on 115 volts A. C., at a line frequency of 47 to 64 Hertz. Operation of the reader is independent of the perforator so that they can both be operated at the same time if required. The reader/perforator can read and/or perforate a 5 channel baudot code or an 8 channel ASCII (AS-Key) code. The function of the reader is to convert the information stored in the form of punched holes into electronic signals, up to a rate of 300 characters per second. The perforator can punch standard 6 or 8 track tapes of paper at speeds up to 120 characters per second.

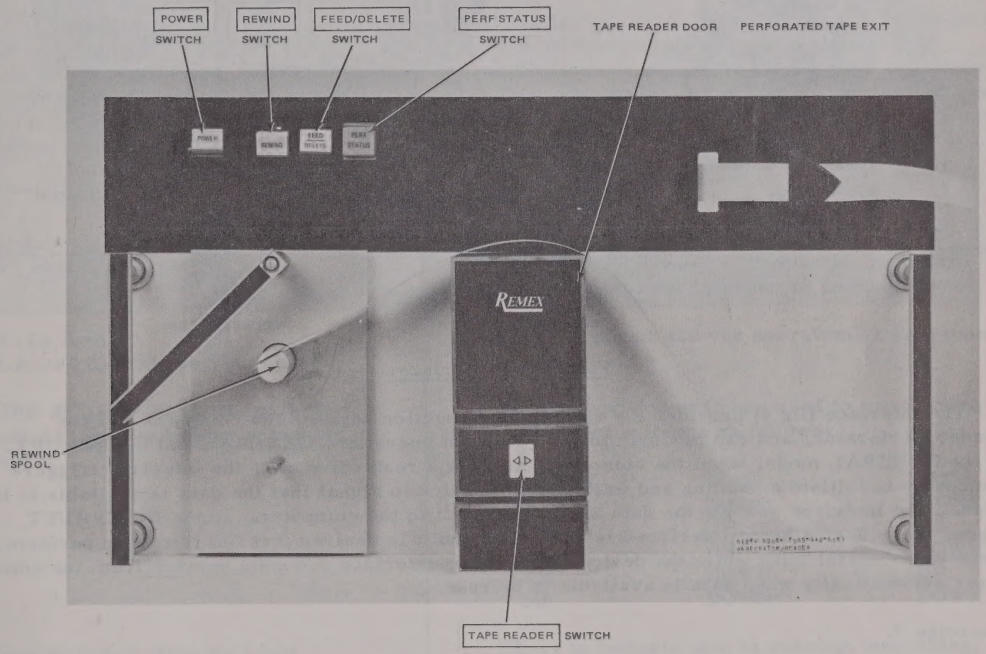

Figure 3. Reader perforator.

Exercise 5.

The reader converts the information stored in the form of punched holes into ELECTRONIC signals, up to a rate of 300 characters per second.

CONFIRMATION

Exercise 5. Electronic - 300.

Exercise 6.

The perforator can punch tapes at speeds up to 120 characters per second.

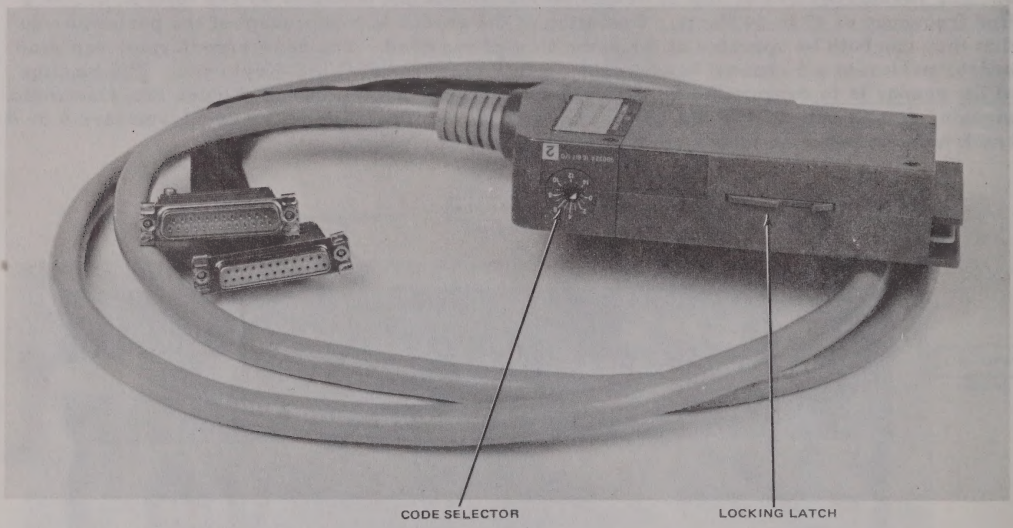

Figure 4. Interface.

6. The interface (fig 4) provides the electrical connection between the computer and the reader/perforator, and can perform in two modes of operation, GENERAL and INTERRUPT. In the GENERAL mode, when the computer executes a read command, the interface triggers the device to initiate a reading and waits for the device to signal that the data is available to be read. The interface accepts the data and transfers it to the computer. In the INTERRUPT mode, if the device being interfaced is very slow and it is desired that the computer perform some other useful work while the device is busy, the interface requests service from the computer automatically when data is available to be read.

Exercise 7.

The interface provides the ELECTRICAL connection between the COMPUTER.

and the READER / PERFORATOR.

7. The software consists of the Met Program Data Cartridge (fig 1) which is nothing more than a small version of a cassette tape. The programing of the computer is accomplished by inserting the cartridge into the computer and applying power. In approximately 6 seconds, the computer is programed and ready to start processing the raw met and wind data. Some of the features provided by the met program software is that the LED display prompts the operator for each data input. Prompted questions with YES or NO answers are answered via the special

CONFIRMATION

Exercise 6. 120.

Exercise 7. Electrical - Computer - Reader/Perforator.

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function keys. The audio alarm beeps to alert the operator for new met data inputs or for answers to questions. Met data is entered via the numeric keyboard, while the radiosonde pressure calibration data can be entered via the numeric keyboard or via the tape reader. The program will on response, produce a sound ranging, ballistic type 2 and 3, computer, fallout, and air weather service message.

Exercise 8.

Met data is entered via the NUMERIC keyboard. The computer is programed in approximately 6 seconds.

8. In order to operate the OL-192 properly and safely, you must have a thorough knowledge of the controls and indicators that are located on each component piece of equipment of the OL-192. We will first start with the controls and indicators on the HP-9825A mini computer. Use the OL-192 assigned you and the figures in this guidance package to assist you as you read about the various controls and indicators. Again, if you encounter any difficulties, notify your instructor.

9. Computer HP9825A (fig 2)

Control or Indicator	Function
0-1 switch (ON/OFF)	In 1 position power is supplied to computer. In 0 position, power is removed from computer.
2A-1A fuse (Located under paper bin cover.)	For 100 vac or 120 vac operation, 2 amp fuse is used.
LINE SELECTOR (Left and Right) switches (located under paper bin cover).	Two (2) position switches used to match computer input voltages as follows:
Tape Program Running Light	Glows to indicate tape is running, searching, loading a program, or recording data
Tape Cartridge Ejection Bar	Ejects Data Program Cartridge.
Light Emitting Diodes (LED) display	Alphanumeric display shows all programed operator instructions. Displays all entered data for OL-192 operator's verification prior to printing and storage. Displays red busy indicator light to show that processor is busy and and will not accept data.

Voltage (VAC)	Left Switch	Right Switch
100	UP	UP
120	UP	DOWN
220	DOWN	UP
240	DOWN	DOWN

	Displays error messages that are defined in error message booklet stored under the paper bin cover. The ⊢ symbol appears as left most character of display indicating that computer is ready and awaiting inputs.
Paper advance wheel	Manually advances heat sensitive paper tape through the computer's thermal printer.
SPECIAL FUNCTION keys	Metallic engraved special function matrix identifies each key.
f 0	START - Starts met data processing by loading computer from the met program data cartridge.
f 1	CONT - Continues met processing after interruptions for correction, deletions or message outputs.
f 2	LAST FLT - Recalls last flight from met data program cartridge storage. Key is programed as an operator's check of OL-192.
f 3	TACFIRE - Will be programed to communicate with TACFIRE weapons system automatically.
f 4	P. TAPE - Programed to prompt operator through procedures to punch radiosonde pressure calibration tapes. Punched tape is outputted automatically.
f 5	PIBAL - Reserved for future pibal programs.
f 6	INFO - Activates after operator presses the NO key. When pressed, computer prints processed met data beginning with last significant data level down to surface, pauses, then outputs processed wind data from surface up to height of last significant met data level as if processing had not been interrupted.
f 7	OUTPUT - Activates after operator presses the NO key. When pressed, computer outputs a copy of all or any met message(s) desired.
f 8	DELETE - Activates after operator presses the NO key. Deletes punching or printing of unwanted met messages. Repeating NO-DELETE allows back stepping to correct errors or pick up omitted data for processing.

f 9	NO - When pressed, causes automatic repeat of promptings to correct errors. Activates the INFO, OUTPUT, and DELETE keys. Also used as STOP processing key.
f 10	YES - Used as a verifier key. When pressed, entered data is transferred from holding registers into memory for storage until required for processing and/or outputting. Questions that require verification will display a ? mark.
f 11	DATA IN - When pressed, causes printer to print entered data, clears LED for next prompting and puts all data entries into holding status registers until data is verified and placed in storage by the YES key.
Audible beeps	Are alerts to instructions that direct you to enter data specified by the LED display or perform actions as explained below: One (1) beep indicates that the LED display is a question to be answered using the YES or NO key. Two (2) beeps indicate that the LED display is a data entry or input request. Three (3) beeps indicate that performance type instructions are being displayed by the LED display.
Numeric and symbol keys	Standard computer functions as labeled with the exception of the * key, which has three functions: 1. As a multiplier key. 2. Indicates MISSING MET DATA LEVEL when used with reference ordinate values. 3. Indicates MISSING WIND DATA when used with elevation angle and causes computer to interpolate angular data after radiosonde has ascended 1,000 meters.
Alfa keys	Typical typewriter keyboard; prints as labeled. This keyboard is used when the operator types in a coded location requiring letters (normally capital letters).

Exercise 9.

Match the name of each special function key listed below with its function.

E	1. Starts met data processing by loading computer from the met program data cartridge.	A. CONT
A	2. Continues met processing after interruptions for corrections, deletions, or message outputs.	B. NO
D	3. Activates after NO key is pressed, when pressed, computer prints processed met and wind data.	C. OUTPUT
C	4. Activates after NO key is pressed, when pressed, computer outputs a copy of all met messages.	D. YES
H	5. Activates after NO key is pressed, deletes punching or printing of unwanted met messages, allows back stepping to correct errors.	E. START
B	6. When pressed, causes automatic repeat of promptings to correct errors. Activates the INFO, OUTPUT and DELETE keys.	F. INFO
G	7. Used as a verifier key, when pressed entered data is placed in memory.	G. DATA IN
	8. When pressed, places all data entries into holding status.	H. DELETE

10. READER/PERFORATOR (Figure 3)

Control or Indicator	Function
POWER switch and indicator	Supplies power to both tape reader and perforator. Push up-lamp illuminates, indicating power on, push down, lamp goes out and power is off.
REWIND switch	Operates tape rewind motor, is spring loaded off. Motor operates only while switch is pressed.
FEED/DELETE switch	3-way switch, spring loaded to center or off position. Pressing upper part (FEED) causes unpunched tape to feed out. Pressing lower part (DELETE) causes perforator to punch all channels.
PERF STATUS indicator	Illuminates when paper tape supply is low. Does not affect perforator's functioning.
Tape reader door	Door open-off condition for computer commands. Door closed-ready condition - awaiting computer commands. Tapes are read when computer YES key is pressed after LED prompting IS READER DOOR CLOSED?

CONFIRMATION

Exercise 9.

1.	E. START	5.	H. DELETE
2.	A. CONT	6.	B. NO
3.	F. INFO	7.	D. YES
4.	C. OUTPUT	8.	G. DATA IN

Tape reader switch	Normal position is spring loaded to center or off condition. Left side pressed, causes reader motor to drive tape left. Right side pressed, causes reader motor to drive tape right.

Exercise 10.

The YES key on the computer caused the tape in the reader to be read.

11. INTERFACE cable (Figure 4)

Control or Indicator	Function
Code selector	For OL-192 operation, must be positioned on 2.
Locking latch	Locks interface cable to computer.

12. Assembling the OL-192 in the classroom is a very simple procedure which involves connecting the interface cable to the computer and reader/perforator and connecting the power cables of the computer and reader/perforator to an electrical outlet. However, the OL-192/GMD-1 in the met section that you will be assigned to will be mounted much differently. You will have to refer to TM 11-6660-263-10 for the proper installation procedures.

Exercise 11.

For OL-192 operation, the code selector on the interface cable must be in the 2 position.

At this time, have the instructor show you the proper way of assembling the OL-192. Also have him show you the proper procedure for changing the paper tape in both the computer and reader/perforator. When the instructor is finished, practice connecting the cables and changing paper tapes until you are satisfied that you can do it.

CONFIRMATION

Exercise 10. YES key.

Exercise 11. 2 position.

INSTRUCTOR CHECK _____

Section II. FLIGHT COMPUTATION

13. The OL-192 artillery met program is programed to cause the light-emitting diodes (LED), on the LED display panel to display visual operator input and output instructions. The program also causes the computer beeper to beep audible operator instructions. These instructions lead you, the operator, through the procedures required to reduce raw met data to processed met data. To better understand the operations of the OL-192, you must have a thorough knowledge of the input and output instructions displayed by the LED display.

14. A brief explanation of the LED display follows:

a. ⊢ The "lazy T" means that the computer is waiting inputs from you.

b. ●⊢ The glowing red dot with the lazy T indicates that the program is loading the computer memories; therefore, no data can be entered. If the tape program is running, or processing, the glowing orange dot, to the left of the cartridge eject button indicates that the program tape is winding or rewinding. After about 9 seconds, both glowing indicators go out and the computer printer begins to print the program title and date as the LED display begins prompting for data inputs.

c. Questions that require a verification response with the YES key (or NO key if question is not applicable) display a question mark (?).

d. Entry response formats are displayed within brackets, indicating the number of digits required, the location of decimal points or hyphens, and the numerical limits of the response entry.
Entry response example: ENTER YEAR (1900 to 1999).

e. Action response formats are displayed as statements.

Action response example: LAUNCH FLIGHT.

f. Operational responses are keyed in as instructed by the LED display. The displays are then put in the holding registers by pressing the DATA IN key, which also cycles the LED display to the next instruction. If data are incorrect, you then press the CLEAR key and rekey in the correct data. At periodic programed phases, the computer printer automatically prints a copy of these data as the LED display will request verification of the data printed for that phase. The YES key verifies the data as correct; if the data are not correct, press the NO key and the program will repeat all requests for that phase. Examine the response keys located on the special function key board and the numeric key board. They consist of the CLEAR, DATA IN, YES and NO keys. These are important keys and you must know the purpose of each, and when they are used.

15. In conjunction with the instructions displayed by the LED display are the audible promptings (beeps). Audible beeps are alerts to instructions that direct you to key in data specified by the LED display or actions explained below:

a. One beep indicates that the LED display is a question to be answered by using the YES or NO key. The YES key is pressed to verify and enter the displayed data into memory. The NO key is pressed, when necessary, to correct a printed error, or to select a choice other than what was displayed.

b. Two beeps indicate that the LED display is a data input request. You respond by using an alpha, alphanumeric, numeric, or a special function key. Your response is displayed before it is entered. You should read each display, and if an error is observed, press the CLEAR key and rekey in the data. If the displayed data is correct, you press the DATA IN key.

Pressing the DATA IN key enters your displayed response into the holding registers and clears the LED display so that the next instruction can be displayed.

c. Three beeps indicate performance-type instructions are being displayed by the LED display. Typical actions are to turn designated switches ON or OFF, read tape data into memory, change paper tape, and calibrate the Q-5 recorder.

16. As mentioned in paragraph 13, you must have a thorough knowledge of the input and output instructions displayed by the LED display. If you encountered any difficulties reading paragraphs 13, 14 and 15, it will be to your benefit to reread the paragraphs. If you think of the OL-192 as a machine that is talking to you by way of its LED display, and that you are answering it by use of the Special Function keys, and the numeric keyboard, you should have no problem in computing met messages.

17. In using the OL-192 for computing the various met messages, the only data needed is the heading data (date-location-altitude), the uncorrected data from the Q-5 chart, the control-recorder tape, the pressure calibration chart and/or tape, and the Q-5 recorder linearity calibration chart. In the guidance package you will find three radiosonde flights numbered 1, 2 and 3. Check Flight # 1 to be sure that you have a RADIOSONDE DATA form, control recorder tape, pressure calibration chart, and a linearity calibration chart. I will talk you through the first flight, explaining each step. If for any reason you encounter any difficulty, notify the instructor immediately.

18. At this time, remove the MET PROGRAM DATA CARTRIDGE from its plastic case. Look at the front side of the cartridge. In the lower right hand corner you will notice a small black slide with the words RECORD and a small ➔ arrow on it. This black slide must always be to its right most position. At this time, have your instructor verify that this is so.

INSTRUCTOR'S CHECK _____

19. To properly install the cartridge in the computer, the back side of the cartridge must be facing you. Place the cartridge over the door of the cartridge slot and insert the cartridge. Notice that the cartridge eject button raises from its slot. To eject the cartridge just push the eject button in (down). Go ahead and insert the cartridge. Once it is inserted properly, reach around to the right rear side of the computer and place the power on/off switch to the ON position and we will begin computing FLIGHT # 1.

20. Did you notice that the LED display USE FUNCTIONAL KEYS TO ACTIVATE was preceded by a glowing red light. If you did not notice this red light and the "Lazy T" (•⊢) then turn the computer off and then back on and watch the LED display. Remember, anytime that you notice this red light glowing, you are not to enter any data into the computer by using the numeric or special function keys.

21. Since you are going to start processing Flight # 1, the functional key that you must use is the START key which is the first key on the top row of the SPECIAL FUNCTIONS keyboard. If you have forgotten the purpose of the various special function keys, then you should re-read the paragraph on CONTROLS and INDICATORS at this time. If not, press the START key and we will begin processing the raw met and wind data from Flight # 1. It will be to your advantage to read each numbered paragraph first, and then go back and re-read it again as you perform the tasks listed. After the START key is pressed, the LED displays PROCESSING START OF FLIGHT and then displays ENTER YEAR (1900 to 1999). The LED is not requesting you to enter what it has on display, but is requesting the year that Flight # 1 was released. The LED display will request separately, the year, month, day, and zulu time (GMT) that the flight was released. This information is obtained from the data blocks at the top right hand corner of the radiosonde data form. Key in the data as requested by using the numeric keys. If an error is observed, use the CLEAR key and redisplay. If correct, use the DATA IN key to enter the

data into the holding registers. A request for verification follows the last printed data request (time GMT) and requires a YES or NO key response. If the data is correct, press the YES key. If the data is in error, press the NO key, and the LED will redisplay the data.

22. After the release time data is entered into memory, the LED displays IS SURVEY OF DAY, TIME, MONTH AND YEAR OK? This survey data request represents the location of the met section. By pressing the NO key, the survey data LED display will prompt you through the procedures of entering new survey or location data in one of two ways (coded or uncoded) after the station elevation to the nearest meter is entered. If the location is coded, you have to key in the required code. If the location is not coded, you must key in the latitude, longitude and octant (quadrant) as the LED display requests. Here at the school the coded location is not used. By pressing the YES key, the computer's printer will print out the survey data of the data shown on the LED display. The YES key is used only if the met section has not moved its location since the data was entered. However, anytime the met section has moved to another location, new survey data for that location must be entered into the computer. At this time, press the NO key and enter the survey data as requested by the LED display. All the data you will need can be found in the data blocks at the top and the bottom center of the Radionsonde Data form.

23. Once the survey data is entered, the LED displays IS A TTY-76 TELETAPE NEEDED? A YES key response causes the reader/perforator to punch a tape acceptable to the current RATT rig and FADAC mechanical tape readers. A NO key response causes the reader/perforator to punch a tape acceptable for the UGC-74, a future high-speed data transmission system. Both the YES and NO responses cause the LED display to remind you to check the size of the paper tape protruding from the punch. For the flights in the guidance package, answer using the YES key.

24. The LED then displays is RCD CK OF DAY, TIME, MONTH, AND YEAR OK? The recorder check is the linearity calibration data for the Q-5. Your response should be NO anytime organizational maintenance has been performed and/or a scheduled calibration has been accomplished that may have affected the recorder's calibration chart. Displayed steps will direct you to key in the recorder serial number, then to key in the values from the re-drawn calibration correction chart, as the LED panel displays the various frequencies obtained from the T.S. 65 test set. In a previous guidance package, you learned that the Q-5 prints a trace of the incoming signal from the radiosonde at one-half its value. For example, a signal of 190 hertz will be printed on the Q-5 record at 95.0 ordinates. An incoming signal of 60 hertz would be printed at 30.0 ordinates if there was no error. However, very seldom will you find a Q-5 that prints all the incoming signals without some error. The YES response causes the printer to print the linearity calibration record of the last calibration automatically. As the printer prints, the correction values are loaded into memory and will automatically be applied to each temperature and humidity value when required. At this time, press the No key and enter the required ordinates when requested by the LED display. The necessary information can be found along the bottom of the linearity calibration chart included with Flight # 1, page 22.

25. Once the linearity calibration data is entered, the printer on the computer prints out the linearity calibration data and the LED displays IS AN/AMT-4 SONDE BEING USED? A YES key response causes the printer to print the type of radiosonde being used as the AN/AMT-4. After completion of the baseline, the printer automatically prints the baseline ratios for the lock-in of the computer, humidity-temperature, CP-223C/UM which is used by the Q-5 operator to check temperature and humidity trend deviations. A NO key response causes the printer to print the sonde being used as a radiosonde type: NWS (National Weather Service) J005

series. This causes the printer to print the baseline temperature ratio setting for the USWB-230 computer and the humidity ratio setting for the USWB-500 computer. (Both used to check trend deviations). Here at the school only the AN/AMT-4D radiosonde is used, so answer by pressing the YES key.

26. The LED then displays DO YOU HAVE A PRESSURE TAPE? This pressure tape is a punched tape of the data printed on the pressure calibration chart. In the near future, all radiosondes will have a pressure calibration tape issued with them, which can then be entered into the computer via the reader/perforator. There is a method of punching a pressure tape manually using the data on the pressure calibration chart, but we will not cover it in this guidance package. A YES response to the display DO YOU HAVE A PRESSURE TAPE? will cause the LED display to lead you through the steps to load the tape in the tape reader. The tape reader loads the computer in about 5 seconds. Since there is no tape included with Flight # 1, press the NO key, and the computer will direct you through the first of two alternate methods of entering the pressures from the pressure calibration chart. The second alternate method is used only if the computer rejects the data used in the first alternate method and consists of entering only the amount of contact pressures needed to complete the flight requirement. The first alternate method is known as the 15 CONTACT method and is programed to operate automatically whenever the pressure calibration tape is missing or damaged. The LED displays (one at a time) 14 predetermined contacts. The 15th contact is the last contact having a printed pressure value and normally is between 162 and 180 contacts. These pressure values load the computer memory with a curve from which each of the significant and mandatory level pressure values will be interpolated. If this method is rejected by the computer, the LED will direct you to proceed into the second alternate method which consists of entering all the contact pressures needed to complete the flight requirement into the computer. At this time, use the 15 CONTACT method and enter the pressures requested by the LED display. You will need the pressure calibration chart issued with Flight # 1, page 23. Remember, check the pressures displayed on the LED display for accuracy before pressing the DATA-IN key.

27. Once the pressures from the calibration chart are entered into memory, the computer will request the necessary data for determining the release contact for the radiosonde. The data requested will include the surface pressure to the nearest 0.1 millibar, the contact on the calibration chart that is lower than the approximate contact for the surface pressure, the pressure for that contact, and the pressure for the next higher contact. Look at the pressure calibration chart for FLIGHT # 1. Locate the surface pressure. It falls somewhere between the 6th and 7th contact. The 6th contact is the lower contact and the 7th contact is the higher contact. At this time, enter the necessary data for determining the surface release contact. If entered correctly, press the YES key.

28. Once the surface release contact has been determined, the computer will request all the necessary base line data. This data consists of the dry and wet-bulb temperature, the reference recorder division, and the temperature and humidity recorder divisions. 95.0 recorder divisions must always be entered for the reference recorder division when ever the base line data is being entered. Enter the necessary data found in the baseline data blocks of the radiosonde data sheet at this time. If the baseline is valid, the LED will display that the baseline is completed and good and then displays LAUNCH THE FLIGHT. Launch the flight is used only as a memory record entry to separate preflight data from flight data.

29. While preparing for launch, the next group of information requested by the LED display is obtained. This is the surface release data, and consists of the azimuth offset angle, obtained from the zero (0.0) print on the control-recorder tape, the horizontal offset in meters, and the surface wind direction and speed. The horizontal offset in meters, and surface wind data for FLIGHT # 1 can be found at the bottom center of the radiosonde data sheet. Go ahead and enter the data into the computer as the LED display requests it.

30. After the surface release data is verified and entered into memory, the LED displays ENTER SURFACE PRESS AT LAUNCH. Once the surface pressure is keyed into memory with the DATA IN key, the LED display requests the surface contact at launch. This data is not obtained from the baseline data blocks of the radiosonde data sheet, but from the release data blocks. Notice that the surface pressure has not changed from what was entered previously, but the surface contact is different. This is an indication that the contact arm of the radiosonde was incorrectly set. The actual release contact and pressure must be entered into the computer, as this allows the computer to make the necessary contact corrections to all of the significant and mandatory levels that you enter into the computer. Go ahead and enter the surface release pressure and the surface release contact found in the release data blocks of the radiosonde data sheet and verify by pressing the YES key when requested by the LED display.

31. The next group of data requested by the LED display is the surface temperature and humidity outside check and consists of the surface reference recorder division and the surface temperature and humidity recorder divisions. Again, as was done for the baseline, 95.0 is always keyed in as the surface reference recorder division. If you look on the radiosonde data sheet at the surface or Ø line, you find all the data that you will need to enter into the computer as the LED display requests it. At this time, enter the surface termperature data.

32. After verification of the surface temperature data, the LED displays NEED USAF WMO MESSAGE. Mission requirements determine how you respond to this LED request. In combat, or any time the met section supports a UNITED STATES AIR FORCE weather section, this response must be YES. The YES response causes the LED to display ENTER IIiii LOCATION CODE. Your section's code from the World Meteorological Organization (WMO) international index is entered, and the printer prints your code. For all flights in this guidance package, you will use the YES key, and enter the location code 72355. When ever the YES key is used, the computer will determine the mandatory levels contact for you, and the LED display will show (in brackets) the pressure contact number where the Q-5 operator must draw a mandatory data level. However, do not enter these values until you are certain that you have entered all the significant levels. The significant levels between the mandatory levels will continue to display the same contact in brackets until you enter their data values. Then the contact in brackets cycles to the contact representing the next mandatory level. The program will not permit you to proceed, omit, or bypass a mandatory level, unless that particular level is within an area of missing data. The procedures to bypass a mandatory level within an area of missing data will be covered in a later paragraph.

33. After verifying with the YES key that the location code is correct, the LED displays in the following order, EVALUATE SIGNIFICANT LEVEL # 1 and ENTER PRESS CONTACT (18.4). What this means is very simple, its requesting that you enter the data for significant level # 1, and telling you to inform the Q-5 operator that you need a mandatory level drawn in and evaluated on the Q-5 chart at 18.4 contacts. At this time, pick up the radiosonde data sheet for Flight # 1 and locate significant level # 1. Follow the LEDS display ENTER PRESS CONTACT (18.4) and enter the contact for significant level # 1 (10.6). Once entered with the DATA IN key, the LED will request time, reference, temperature recorder division, and humidity recorder division in that order. So enter the data for significant level # 1. After the humidity recorder division is entered the LED displays IS PRINTED DATA FOR SIG LEV OK?. Check the data printed by the computer and if correct, press the YES key. Pressing the NO key will cause the computer to request all the data again.

34. The YES response causes several LED display changes. The first display: TEMP LAPSE RATE (DEGREES/KM); indicates the direction or slope of the temperature trend between levels as does the virtual temperature curve on the ML-574 chart. The next display could be either of two types. It could be EVALUATE SIGNIFICANT LEVEL # 2, or 3 etc. This will be repeated as necessary until the program memory has stored sufficient time, pressure, temperature, and humidity data to satisfy either a complete sound ranging or artillery zone. When enough met data is stored, then a winds data request is displayed: ENTER ELEV ANGLE AT

TIME XX.X. This remains displayed until the winds data entry begins. For Flight # 1, enough met data has been put into memory to satisfy the requirement for several soundranging zones, and the LED displays ENTER ELEV ANGLE AT TIME 0.7. Look at your control-recorder tape and obtain the elevation angle for 0.7 minutes and key it into the computer. The LED then displays ENTER AZ ANGLE AT TIME 0.7. Again, obtain the azimuth angle and key it in to the computer. The LED again requests the elevation and azimuth angle in that order for the next higher tenth (.1) of a minute. The purpose of this, is that the computer will interpolate between the two times to determine the time at top of zone. Once all the data is entered, the LED will display ARE PRINTED ANGLES FOR TIME OK? Compare both the elevation and azimuth angles with the ones printed on the control-recorder tape, if correct, press the YES key. If not, press the NO key and re-enter the data again as requested. Pressing the YES key puts the data into memory and causes the LED to display OK FOR MESSAGES TO HEIGHT XXXXX and then requests data for another significant level or the next zone's wind data. You will find that all the entries that you have to make now, will be repetitious and that you should have no problem understanding the LEDS request for data. Go ahead and enter the data for each level up to and including level # 5. DO NOT at this time, enter data for level # 6.

35. It was mentioned in paragraph 32 that there is a way to by pass a mandatory level if that mandatory level falls within an area of missing data. Look at level # 6 on your radiosonde data sheet. Notice that there is no temperature or humidity data for this level. This is an example of a mandatory level within an area of missing data. Also you will notice an asterisk (*) to the right of the reference value. This is how you by pass this mandatory level. Go ahead and key in the requested data for level # 6, to include the asterisk (*) with the reference. When 95.0* is entered, the LED displays DOES MISSING DATA STOP HERE? The answer to this request is a NO. Upon pressing the NO key, the LED displays IS MET DATA MISSING AT CONTACT? The answer to this request is a YES, since the met data is missing at this level. Pressing the YES key causes the printer to print TEMP & HUMIDITY ARE MISSING AT THIS MANDATORY LEVEL 700.0, while the LED displays EVALUATE SIGNIFICANT LEVEL # 7 and ENTER PRESS CONTACT (56.8).

36. Go ahead and evaluate Level # 7, be sure to enter the asterisk (*) with the reference. When the LED displays DOES MISSING DATA STOP HERE answer with the YES key, since you have met data for this level. Once the YES key is pressed, the printer prints MET DATA RESUMES HAD BEEN MISSING, and the LED displays ENTER TEMPERATURE RD (tenths). Finish entering the rest of the met data for Level # 7, and the angular data for 9.4 and 9.5 minutes only.

37. After the angular data for 9.4 and 9.5 minutes has been keyed in and verified, the LED displays ENTER ELEV ANGLE AT TIME: 11.2. Just suppose now that some time after 9.6 minutes the control recorder ran out of paper or the paper advance mechanism is not working. It would be very hard for you or some one else to stand by the control-recorder with pencil and paper copying the angular data every six seconds (10 prints per minute), when all you would have to do is change the PRINTS PER MINUTE switch on the control recorder to 1 or 2 prints per minute and copy the angular data once or twice a minute. When this occurs, there has to be a way to let the computer know that you are going to enter angular data on the half or whole minute. This is done by using the asterisk * again. Let's assume that the control recorder ran out of paper and that the PRINTS PER MINUTE switch on the control-recorder has been placed in the one print per minute position. The LED is displaying ENTER ELEV ANGLE AT TIME: 11.2. Instead of keying in the elevation angle at 11.2 minutes, key in 1.0*. This tells the computer of the change, and the LED redisplays ENTER ELEV ANGLE AT TIME: 11.0. Go ahead and enter the angular data for 11.0 minutes. After the angular data for 11.0 minutes is verified, the LED displays ENTER ELEV ANGLE FOR TIME: 12.0. Again, let's assume that a new roll of paper has been put in the control-recorder and that its printing again at 10 prints per minute. Instead of entering the elevation angle for 12.0 minutes, key in .1* and the LED will re-display ENTER ELEV ANGLE AT TIME: 11.2. If you had wanted to inform the computer that the control-recorder was printing at 2 prints per minute, you would have entered

.5* instead of the 1.0*. Go ahead and key in the necessary data to complete levels 8 and 9 when requested by the LED display.

38. Now that you have entered all the data for the 9 significant levels, and assume that the flight is complete, suppose the Q-5 operator informs you that he made a mistake in Level # 9. To correct this error is a very simple process. When the LED displays EVALUATE SIGNIFICANT LEVEL # 10 and ENTER PRESS CONTACT (56.8) press the NO key. Pressing the NO key causes the LED to display "DELETE", "OUTPUT", "INFO" ACTIVE. What this means is that the DELETE, OUTPUT, AND INFO keys on the SPECIAL FUNCTION keyboard are active and can now be used. The key you're interested in is the DELETE key since you want to delete some bad met data. Press the DELETE key and the LED displays in sequence DELETING SIGNIFICANT LEVEL, evaluate SIGNIFICANT LEVEL # 9 and ENTER PRESSURE CONTACT: (56.8). At the same time, the printer prints REPEATING LEVEL. By repeated use of the NO and DELETE key, you can delete all of the levels in order to correct erroneous data.

39. Since you have entered all the required data for Flight # 1, I'm sure you would like to see the results of your work. At this time, press the NO key and when the LED displays "DELETE", "OUTPUT", "INFO" ACTIVE, press the OUTPUT key. The LED then displays TURN ON REMEX FOR TELETAPE. Reach over and turn on the remex (Reader/Perforator). The first message you will receive is the sound ranging message. So sit back and watch the fruit of your labor appear.

40. After all of the met messages are printed out, the LED displays NEED "LAST FLIGHT" updating?. Pressing the YES key causes the computer to dump the previous flight and place this flight into memory. Pressing the NO key causes the LED to display PROCESSING FLIGHT CONTINUATION and the computer automatically takes you back to EVALUATE SIGNIFICANT LEVEL # 10, ENTER PRESS CONTACT (56.8). The logic behind this is very simple. Suppose someone only wants a 5-line message. Instead of making him wait until the flight was completed, you could output him his messages by pressing the NO key and then the OUTPUT key when the LED displayed OK FOR MESSAGES TO HEIGHT 2000. If only the computer and ballistic type 3 messages were required, you could delete the other messages when the LED displayed that they were being processed by using the DELETE key. For all flights in this guidance package, you will use the NO key. As soon as the computer printer has printed all the messages for Flight # 1, have the instructor check your work.

Flight # 1 Instructor's Check _____

41. At this time shut off the computer and check Flights 2 and 3 to insure that you have all the necessary met information for computing them. Use the linearity calibration chart from Flight # 1 for Flight 2 and 3. As soon as you're done computing each flight, have the instructor check your work.

Flight # 2 Instructor's Check _____

Flight # 3 Instructor's Check _____

42. For other capabilities of the OL-192 in the processing of met data, refer to TM 11-6660-263-10, Meteorological Data Groups OL-192/GMD-1 and OL-192A/GMD-1.

RADIOSONDE DATA

(FM 6-15)

STATION	LOCATION		RELEASE TIME	DATE	HOUR	FLIGHT NO.
MET	34.7	98.3	LST	1 march 1978	0900	1
			GMT	1 MARCH 1978	1500	

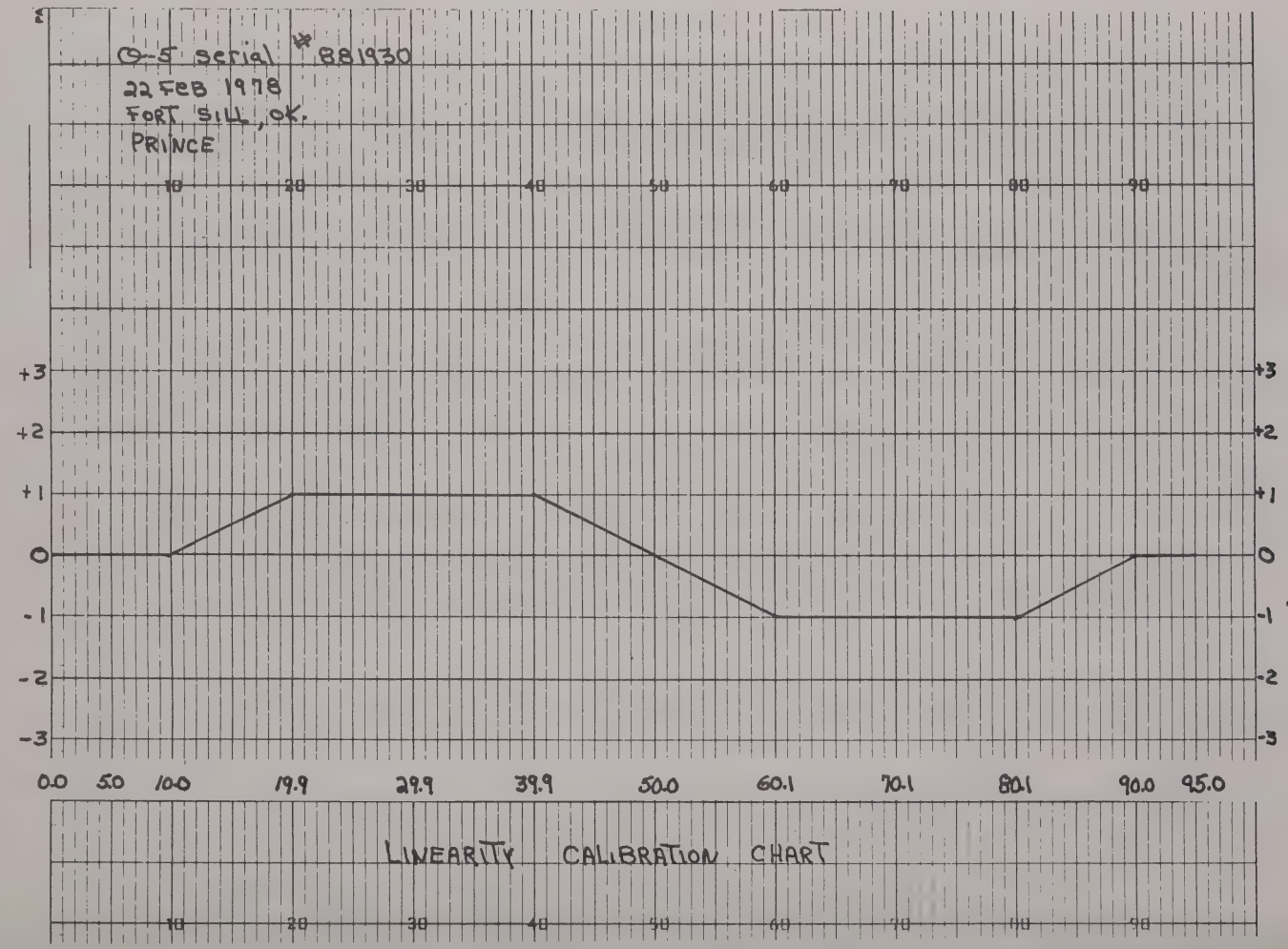
LEVEL NUMBER	PRESSURE			TEMPERATURE		RELATIVE HUMIDITY	
	CONTACT (1)		MILLIBARS (2)	RECORDER DIVISION (3)	°C (4)	RECORDER DIVISION (5)	% (6)
BASE-LINE CHECK DATA	(INITIAL SETTING) 6.4		(INITIAL SETTING) 989	64.4	DRY 21.0 WET 11.8 DEP'N	81.0	
RELEASE DATA	6.0		989 REFERENCE		DRY WET DEP'N		
SUR 0	CONTACT	TIME	95.0	57.6		79.3	
1	10.6	1.70	95.0	52.4		65.6	
2	18.4	4.77	95.4	48.9		66.1	
3	21.0	5.76	95.0	48.0		71.4	
4	25.0	7.29	95.0	44.2		77.5	
5	29.3	8.87	94.8	48.4		79.8	
6	33.3	10.40	95.0*	XXX		XXX	
7	38.0	12.20	94.6*	39.0		75.8	
8	41.0	13.36	95.0	39.0		75.2	
9	46.0	15.27	95.0	34.3		46.1	
10							
11							
12							
13							
14							
15				OCTANT	1		
16				ELEVATION	360 METERS		
17				OFF-SET	50 METERS		
18				SFC WIND DIR.	110°		
19				SFC WIND SPD.	04 KNOTS		
20							
21							
22							
23							
24							

7) MODULATOR SERIAL NO.	BASELINE CHECK TIME	RECORDER OPERATOR	CHECKER
	LST _____ GMT _____		

43.00	00.0	212.85
44.00	00.1	213.85
46.95	00.2	247.80
47.45	00.3	263.60
44.10	00.4	280.40
41.20	00.5	283.15
40.45	00.6	285.45
39.65	00.7	285.40
39.10	00.8*	288.10
38.30	00.9	291.40
38.15	01.0	292.80
38.05	01.1	294.45
38.35	01.2	296.50
38.90	01.3	299.40
39.65	01.4	302.15
40.65	01.5	304.00
41.40	01.6	305.50
42.25	01.7	308.70
43.75	01.8	311.50
44.15	01.9	313.85
45.30	02.0	316.30
46.25	02.1	317.25
46.70	02.2	318.70
47.95	02.3	319.90
48.40	02.4	321.85
49.40	02.5*	323.15
49.55	02.6	324.90
50.30	02.7	327.40
51.50	02.8	329.80
51.85	02.9	331.05
51.25	03.0	333.90
51.25	03.1	335.80
50.30	03.2	337.75
50.70	03.3	340.15
50.55	03.4	341.85
50.20	03.5	343.15
50.45	03.6	345.35
50.75	03.7	348.00
50.90	03.8	350.95
51.85	03.9	351.45
51.15	04.0	354.00
51.60	04.1*	356.30
51.95	04.2	359.00
52.25	04.3	001.40
52.25	05.6	015.30
52.35	05.7	016.15
52.45	05.8	016.85
52.50	05.9*	017.55
52.50	06.0	017.40
52.30	06.1	018.15
52.30	06.2	017.75

51.40	07.4	28.90
51.30	07.5	28.80
51.20	07.6*	29.70
51.20	07.7	30.20
50.85	07.8	31.85
50.70	07.9	33.20
50.60	08.0	34.70
50.55	09.1	43.05
50.65	09.2	44.60
50.65	09.3*	45.80
50.40	09.4	46.50
50.40	09.5	47.05
50.40	09.6	48.25
50.40	09.7	48.95
50.30	09.8	49.80
50.30	09.9	50.20
50.45	10.0	50.70
49.85	11.0	58.25
49.70	11.1	59.70
49.60	11.2	59.80
49.55	11.3*	60.60
49.10	11.4	61.25
49.00	11.5	61.95
48.65	11.6	62.85
48.50	11.7	62.95
48.30	11.8	63.70
48.05	11.9	64.50
47.70	12.0	65.10
46.55	12.9	70.15
46.30	13.0	70.75
46.20	13.1*	71.65
46.10	13.2	72.30
46.10	13.3	73.05
46.10	13.4	73.75
46.10	13.5	74.65
42.80	14.8	88.70
42.55	14.9*	89.80
42.20	15.0	90.65
41.90	15.1	91.50
41.30	15.2	92.60
40.00	15.3	93.25

FLT # 1


O-5 Serial # 881930
22 Feb 1978
Fort Sill, OK.
PRINCE
10
20
30
40
50
60
70
80
90
+3
+2
+1
0
-1
-2
-3
0.0
5.0
10.0
19.9
29.9
39.9
50.0
60.1
70.1
80.1
90.0
95.0
LINEARITY CALIBRATION CHART

BAROSWITCH PRESSURE CALIBRATION CHART FLT 1

BAROSWITCH SERIAL NO. 777-1092

DETENT CLICK VALUE .60

	1	2	3	4	5	6	7	8	9
	1054.8	1042.8	1030.8	1019.3	1008.3	993.8	982.3	971.3	960.3
10	11	12	13	14	15	16	17	18	19
949.8	935.8	925.3	913.8	903.3	892.3	879.8	869.3	858.3	847.8
20	21	22	23	24	25	26	27	28	29
837.8	825.8	815.8	805.8	794.8	785.3	773.3	762.8	753.3	743.8
30	31	32	33	34	35	36	37	38	39
734.8	724.8	716.3	706.8	697.8	688.8	677.3	668.8	659.8	650.8
40	41	42	43	44	45	46	47	48	49
641.8	631.8	623.3	614.8	606.3	597.8	589.8	581.8	573.8	565.8
50	51	52	53	54	55	56	57	58	59
558.3	548.3	540.3	532.8	525.3	517.8	508.8	500.8	494.3	486.3
60	61	62	63	64	65	66	67	68	69
479.8	472.3	464.8	458.3	451.3	444.8	435.8	429.3	422.8	416.3
70	71	72	73	74	75	76	77	78	79
409.3	401.3	394.8	388.8	382.8	376.3	370.3	364.3	358.3	352.3
80	81	82	83	84	85	86	87	88	89
346.8	339.3	333.8	327.8	321.8	316.8	309.8	304.3	298.8	293.8
90	91	92	93	94	95	96	97	98	99
288.3	282.8	277.8	271.8	266.8	261.8	255.8	250.8	245.8	241.3
100	101	102	103	104	105	106	107	108	109
236.8	230.8	226.3	221.8	217.8	213.3	208.8	204.3	200.3	196.3
110	111	112	113	114	115	116	117	118	119
192.3	186.8	183.3	179.8	175.8	171.8	167.3	163.8	159.8	156.8
120	121	122	123	124	125	126	127	128	129
152.8	149.8	146.3	142.8	139.8	136.3	132.3	129.3	125.8	122.8
130	131	132	133	134	135	136	137	138	139
119.8	116.8	113.3	110.8	107.8	104.8	101.8	98.8	95.8	92.3
140	141	142	143	144	145	146	147	148	149
89.3	86.3	83.3	80.8	77.8	74.8	72.3	69.8	66.8	64.3
150	151	152	153	154	155	156	157	158	159
61.8	59.3	56.8	54.8	51.8	49.8	46.8	44.8	42.3	39.8
160	161	162	163	164	165	166	167	168	169
37.8	35.3	33.3	30.8	28.8	26.3	23.8	21.8	18.8	16.8
170	171	172	173	174	175	176	177	178	179
14.8	12.3	9.8	7.8	5.8	2.8	.0	.0	.0	.0

VIZ MANUFACTURING CO.
335 E PRICE ST PHILA PA 19144 215 844 2020

VIZ FORM NO. 1292-068

0000 0000 0000 1000

61480

30084

FLT #1 MET MESSAGES

FLIGHT DATE:
Ø1 15ØØZ MAR 78

SOUND-RANGING

METSR1347983
Ø11500 Ø7Ø232Ø8

COMPUTER
METCM1347983
Ø11500036989
ØØ196ØØ428350989
Ø1211Ø1Ø28190977
Ø2272ØØ927780948
Ø3375ØØ827390902
Ø4416Ø1Ø27Ø60847
Ø5425ØØ926710795
Ø6477Ø1326880746
Ø7501Ø1326530700
Ø8500Ø1825940656
Ø9555Ø2825630614

FALL-OUT

METFM1347983
Ø115ØØØ36TRO
ØØ196ØØ4
Ø1373ØØ7
Ø2518Ø17

BALLISTIC TYPE-3
METB31347983
Ø11500036976
ØØ2ØØ4984992
Ø12110981995
Ø226Ø9974ØØØ
Ø3340797ØØØ3
Ø4380896800 4
Ø54ØØ8967ØØ4
Ø6461Ø976998
Ø75115973997

BALLISTIC TYPE 2

METB21347983
Ø115ØØØ36976
ØØ2ØØ4984992
Ø12110981995
Ø22409977998
Ø32907974ØØ1
Ø43307972ØØ3
Ø53607971ØØ3
Ø6410797 1ØØ2
Ø74508972ØØØ

AIR-WEATHER MESSAGE

METW13471598ØØ
Ø1Ø36

TTAA5115772355
9998909864 11ØØ4
ØØ268/////////
855830335723510
70/////////////
88999
;

TTBB5115/72355
ØØ98909864
1193502458
2285003357
3382103559
4478008561
5573702963
6670003361
7765514760
8862814959
9958621147
;

PPBB5115Ø72355
90023
11004135112ØØØ5
90467
21510235102401Ø
9089/
2601227013
9123/
2851930525
;

RADIOSONDE DATA
(FM 6-15)

STATION	LOCATION		RELEASE TIME	DATE	HOUR	FLIGHT NO.
MET	34.7	98.3	LST	10 MARCH 1978	0730	2
			GMT	10 MARCH 1978	1330	

LEVEL NUMBER	PRESSURE		TEMPERATURE		RELATIVE HUMIDITY	
	CONTACT (1)	MILLIBARS (2)	RECORDER DIVISION (3)	°C (4)	RECORDER DIVISION (5)	% (6)
BASE-LINE CHECK DATA	(INITIAL SETTING) 7.3	(INITIAL SETTING) 980	75.0	DRY 39.0 WET 24.4 DEP'N	80.6	
RELEASE DATA	7.4	980		DRY WET DEP'N		
		REFERENCE				

SUR	CONTACT	TIME				
0	CONTACT	TIME	95.0	60.5		50.5
1	10.8	1.32	95.0	61.5		45.8
2	14.0	2.48	96.5	55.8		41.5
3	18.7	4.02	94.5	53.0		35.6
4	22.0	5.57	94.7	50.3		75.0
5	25.0	6.71	95.0	48.9		77.3
6	29.0	8.28	95.0	48.4		78.5
7	31.8	9.35	95.0	45.7		77.5
8	33.9	10.2	95.0*	XX.X		XXX
9	38.5	11.99	95.0*	42.6		73.3
10	42.0	13.30	95.0	42.0		71.2
11	47.0	15.23	95.0	38.3		62.2
12	51.0	16.78	95.0	35.3		80.9
13	53.6	17.80	95.0	34.6		82.0
14	55.0	18.33	95.0	34.3		82.3
15	56.5	19.00	95.0	33.7		82.3
16						
17						
18				OCTANT	1	
19				ELEVATION	360 METERS	
20				OFF SET	100 METERS	
21				SFC WIND DIR.	320°	
22				SFC WIND SPD	11 KNOTS	
23						
24						

(7) MODULATOR SERIAL NO.	BASELINE CHECK TIME	RECORDER OPERATOR	CHECKER
	LST _____ GMT _____		

00.85	00.0	176.65
23.85	00.1	188.00
36.30	00.2	192.55
38.55	00.3	196.50
39.40	00.4	195.20
40.00	00.5	197.55
	00.5*	
38.30	00.6	196.25
39.45	00.7	196.15
38.55	00.8	196.50
38.95	00.9	196.90
38.95	01.0	197.30
39.40	01.1	196.25
39.40	01.2	197.25
40.50	01.3	198.20
40.55	01.4	198.50
41.25	01.5	198.50
41.95	01.6	199.45
41.95	01.7	199.40
41.85	01.8	199.35
41.60	01.9	201.55
42.70	02.0	203.20
	02.0*	
43.60	02.1	204.30
44.50	02.2	204.50
44.25	02.3	204.90
45.40	02.4	205.40
46.30	02.5	207.35
47.20	02.6	210.15
47.35	02.7	211.70
48.40	02.8	213.50
49.65	02.9	213.85
50.30	03.0	214.40
51.55	03.1	214.25
52.30	03.2	214.55
52.85	03.3	215.10
53.05	03.4	215.30
	03.4*	
54.10	03.5	214.60
55.95	03.6	214.40
56.35	03.7	213.05
57.50	03.8	213.00

67.85	05.0	203.20
68.75	05.1	201.30
	05.1*	
70.15	05.2	200.45
72.55	05.3	198.30
72.60	05.4	198.25
72.95	05.5	198.05
74.50	05.6	193.65
73.95	05.7	190.50
74.10	05.8	188.15
74.65	05.9	184.35
74.45	06.0	181.50

73.45	06.7	154.45
73.60	06.8	150.50
73.95	06.9	147.80
	06.9*	
72.95	07.0	144.15
72.50	07.1	141.45
71.70	07.2	139.85
71.60	07.3	136.50
71.60	07.4	133.15
71.05	07.5	130.70
70.85	07.6	126.35
70.65	07.7	122.75
70.35	07.8	118.15

63.00	08.9	103.40
62.15	09.0	102.20
61.45	09.1	101.15
60.45	09.2	100.00
60.00	09.3	99.10
58.85	09.4	98.80
58.20	09.5	98.10
57.20	09.6	97.60
56.70	09.7	97.05
55.55	09.8	97.00
54.65	09.9	96.30
52.50	10.0	95.75

47.30	10.8	92.70
	10.8*	
46.60	10.9	92.40
46.15	11.0	92.05
45.30	11.1	91.90
44.45	11.2	91.95
43.90	11.3	92.00
43.25	11.4	92.35
42.75	11.5	92.55
42.80	11.6	92.75

39.15	12.5	92.50
37.80	12.6	92.30
37.50	12.7	92.10
37.20	12.8	91.80
36.85	12.9	91.60
	12.9*	
36.35	13.0	91.45
36.25	13.1	91.55
35.60	13.2	91.60

32.05	14.3	93.00
31.85	14.4	93.20
31.60	14.5	93.20
31.55	14.6	93.30
31.20	14.7	93.25
31.90	14.8	93.15
30.60	14.9	93.05
30.35	15.0	93.00
	15.0*	
30.35	15.1	92.90
29.80	15.2	92.90
29.50	15.3	92.80
29.40	15.4	92.75

28.60	15.8	92.35
28.45	15.9	92.35
28.25	16.0	92.40
28.00	16.1	92.40
17.70	16.2	92.40
27.75	16.3	92.40
27.70	16.4	92.40
27.35	16.5	92.20
27.15	16.6	92.10
27.00	16.7	91.90
26.85	16.8	91.85

25.10	17.8	91.30
24.90	17.9	91.20
24.80	18.0	91.10
24.65	18.1	91.05
24.50	18.2	91.00
24.20	18.3	90.95
24.15	18.4	90.85
24.00	18.5	90.80
23.90	18.6	90.80
23.75	18.7	90.70

FLT # 2

BAROSWITCH PRESSURE CALIBRATION CHART FLT 2

BAROSWITCH SERIAL NO. 803 - 1000

DETENT CLICK VALUE .60

	1	2	3	4	5	6	7	8	9
	1057.8	1045.8	1033.8	1021.3	1009.8	995.3	983.8	971.8	960.8
10	11	12	13	14	15	16	17	18	19
949.8	935.3	923.8	912.3	902.3	891.3	877.8	867.8	856.8	846.8
20	21	22	23	24	25	26	27	28	29
835.8	823.8	813.3	802.8	792.8	782.8	770.8	760.8	750.8	741.3
30	31	32	33	34	35	36	37	38	39
731.8	721.8	712.3	702.8	693.8	684.8	673.8	664.3	655.3	646.8
40	41	42	43	44	45	46	47	48	49
637.8	627.3	618.8	609.8	601.8	592.8	584.8	576.8	568.8	560.8
50	51	52	53	54	55	56	57	58	59
552.8	542.8	534.8	527.3	519.8	512.3	502.8	495.3	488.3	480.8
60	61	62	63	64	65	66	67	68	69
473.8	466.8	459.8	452.8	445.8	438.8	430.3	423.8	416.8	410.8
70	71	72	73	74	75	76	77	78	79
403.8	396.3	389.8	383.8	377.3	371.3	365.3	359.3	353.3	347.3
80	81	82	83	84	85	86	87	88	89
341.8	334.8	328.8	322.8	317.3	311.8	305.3	299.8	294.8	289.3
90	91	92	93	94	95	96	97	98	99
284.3	279.3	274.3	269.3	264.3	259.8	253.8	248.8	244.3	239.8
100	101	102	103	104	105	106	107	108	109
235.3	229.8	225.3	220.8	216.8	212.8	208.3	204.3	199.8	196.3
110	111	112	113	114	115	116	117	118	119
191.8	187.8	183.8	179.8	175.8	172.8	167.8	164.3	160.8	157.3
120	121	122	123	124	125	126	127	128	129
153.8	150.8	147.3	143.8	140.8	137.8	133.8	130.8	127.3	124.3
130	131	132	133	134	135	136	137	138	139
121.3	117.8	114.8	111.8	108.8	106.3	102.8	99.8	96.3	92.8
140	141	142	143	144	145	146	147	148	149
89.8	86.8	83.8	80.8	77.8	74.8	71.8	68.8	65.8	62.8
150	151	152	153	154	155	156	157	158	159
59.8	56.8	54.3	51.3	49.8	45.8	42.8	39.8	37.3	34.3
160	161	162	163	164	165	166	167	168	169
31.8	28.8	25.8	22.8	20.3	17.3	14.8	11.8	8.8	5.8
170	171	172	173	174	175	176	177	178	179
2.8	.0	.0	.0	.0	.0	.0	.0	.0	.0

VIZ FORM NO. 1292-068

VIZ MANUFACTURING CO.
335 E PRICE ST PHILA PA 19144 215 844 2020

56545

29084

0000 0000 0000 0010

TEST

RADIOSONDE DATA
(FM 6-15)

STATION	LOCATION		RELEASE TIME		DATE	HOUR	FLIGHT NO.
MET	34.7	98.3	LST		8 Aug 1978	1500	3
			GMT		8 Aug 1978	2100	

LEVEL NUMBER	PRESSURE		TEMPERATURE		RELATIVE HUMIDITY	
	CONTACT (1)	MILLIBARS (2)	RECORDER DIVISION (3)	°C (4)	RECORDER DIVISION (5)	% (6)
BASE-LINE CHECK DATA	(INITIAL SETTING) 8.2	(INITIAL SETTING) 968.6	71.5	DRY 34.5 WET 23.6 DEP'N	80.4	
RELEASE DATA	8.2	968.6 REFERENCE		DRY WET DEP'N		

SUR	CONTACT	TIME				
0			95.0	71.4		78.5
1	13.0	1.70	95.0	68.7		74.6
2	18.7	3.47	95.0	65.7		69.3
3	19.9	4.29	94.9	67.1		77.3
4	26.0	6.75	95.0	64.8		80.1
5	31.0	8.70	94.8	62.1		79.3
6	33.6	10.01	94.6	59.5		74.2
7	37.0	11.27	95.0	58.2		72.3
8	40.0	12.43	94.9	57.2		82.4
9	48.0	16.01	94.7	51.6		78.3
10	51.0	17.51	95.0	49.9		82.8
11	57.1	20.47	95.0	45.3		83.7
12	60.0	21.54	95.0	44.0		83.7
13	63.0	22.83	95.0	42.8		83.8
14	71.2	26.71	95.0	36.9		84.2
15	78.0	30.11	95.0	31.2		84.5
16	81.0	31.59	85.0	28.7		84.3
17	87.7	34.43	95.0	24.6		85.3
18	95.5	38.63	95.0	18.1		XXX
19	97.1	39.81	95.1	16.1		XXX
20					OCTANT # 1	
21					ELEVATION	400 meters
22					OFFSET	49 meters
23					Sfc wind dir.	331°
24					Sfc wind spd.	08 knots

(7) MODULATOR SERIAL NO.	BASELINE CHECK TIME	RECORDER OPERATOR	CHECKER
	LST _____ GMT _____		

USE FIT # 1 PRESSURE CALIBRATION CHART

00.85	00.0	176.65
23.85	00.1	188.00
36.30	00.2	192.55
38.55	00.3	196.50
39.40	00.4	195.20
40.00	00.5	197.55
	00.5*	
38.30	00.6	196.25
39.45	00.7	196.15
38.55	00.8	196.50
38.95	00.9	196.90
38.95	01.0	197.30
39.40	01.1	196.25
39.40	01.2	197.25
40.50	01.3	198.20
40.55	01.4	198.50
41.25	01.5	198.50
41.95	01.6	199.45
41.95	01.7	199.40
41.85	01.8	199.35
41.60	01.9	201.55
42.70	02.0	203.20
	02.0*	
43.60	02.1	204.30
44.50	02.2	204.50
44.25	02.3	204.90
45.40	02.4	205.40
46.30	02.5	207.35
47.20	02.6	210.15
47.35	02.7	211.70
48.40	02.8	213.50
49.65	02.9	213.85
50.30	03.0	214.40
51.55	03.1	214.25
52.30	03.2	214.55
52.85	03.3	215.10
53.05	03.4	215.30
	03.4*	

64.90	04.8	206.10
66.40	04.9	203.20
67.85	05.0	203.20
68.75	05.1	201.30
	05.1*	
70.15	05.2	200.45
72.55	05.3	198.30

74.15	06.5	161.80
73.70	06.6	153.75
73.45	06.7	154.45
73.60	06.8	150.50
73.95	06.9	147.80
	06.9*	

67.75	08.3	108.80
67.15	08.4	107.55
66.30	08.5	105.50
65.60	08.6	105.65
64.95	08.7	105.10
63.75	08.8	103.90
	08.8*	

50.70	10.3	94.75
50.45	10.4	94.20
49.25	10.5	93.80
48.55	10.6	93.35
48.00	10.7	93.00
47.30	10.8	92.70
	10.8*	

41.80	11.9	93.20
40.55	12.0	92.40
40.05	12.1	93.45
39.60	12.2	93.25
39.20	12.3	93.00
38.70	12.4	92.75

33.60	13.8	92.45
33.35	13.9	92.60
33.10	14.0	92.75
32.75	14.1	92.85
32.40	14.2	92.90
32.05	14.3	93.00

28.60	15.8	92.35
28.45	15.9	92.35
28.25	16.0	92.40
28.00	16.1	92.40
17.70	16.2	92.40
27.75	16.3	92.40
27.70	16.4	92.40

24.90	17.9	91.20
24.80	18.0	91.10
24.65	18.1	91.05
24.50	18.2	91.00
24.20	18.3	90.95
24.15	18.4	90.85
24.00	18.5	90.80

20.15	21.6	89.55
20.05	21.7	89.45
20.00	21.8	89.45
19.85	21.9	89.35
19.70	22.0	89.25
19.65	22.1	89.25
19.55	22.2	89.15
19.45	22.3	89.00

16.55	25.3	88.10
16.40	25.4	88.10
16.45	25.5	88.10
16.25	25.6	88.10
16.15	25.7	88.05
16.05	25.8	88.10

13.30	29.4	88.45
13.20	29.5	88.50
13.15	29.6	88.55
13.10	29.7	88.50
13.05	29.8	88.55
13.05	29.9	88.55
13.00	30.0	88.55

	32.8*	
11.30	32.9	87.65
11.30	33.0	87.60
11.25	33.1	87.55
11.20	33.2	87.55
11.10	33.3	87.55
11.10	33.4	87.50
11.00	33.5	87.45

10.25	36.7	87.20
10.25	36.8	87.20
10.20	36.9	87.20
10.20	37.0	87.20
10.10	37.1	87.20
10.05	37.2	87.15
10.00	37.3	87.15
10.00	37.4	87.15
10.00	37.5	87.15
	37.5 *	

FLT # 3

TEST